

Waste reform?

What really needs to be done.

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3 Key Themes

1. **Growth in waste to landfill is unsustainable**
 - State targets are mostly unachievable
 - Requires significant infrastructure investment
2. Climate change requires leadership in waste
3. Need a new dialogue with government

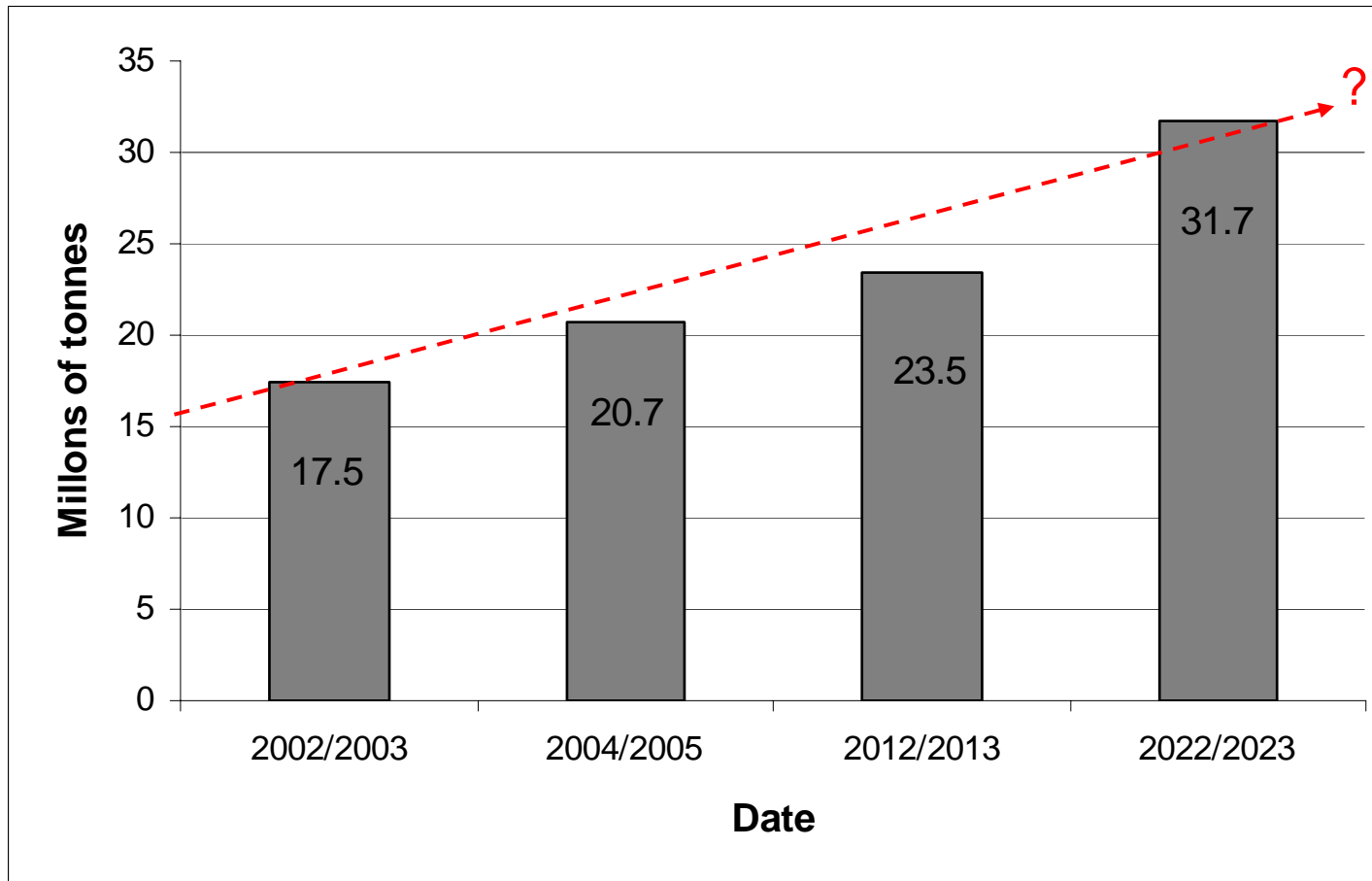


Voluntary targets – virtually all unachievable

NSW	2014 2014	66% diversion MSW 63% C+I
VIC	2013 2013	65% MSW 80% C+I
WA	2020	100% diversion
ACT	2010	100%
SA	2010 2010	75% MSW 30% C+I
NT		no target
QLD		no target
TAS		in development



Waste disposal trend in Australia

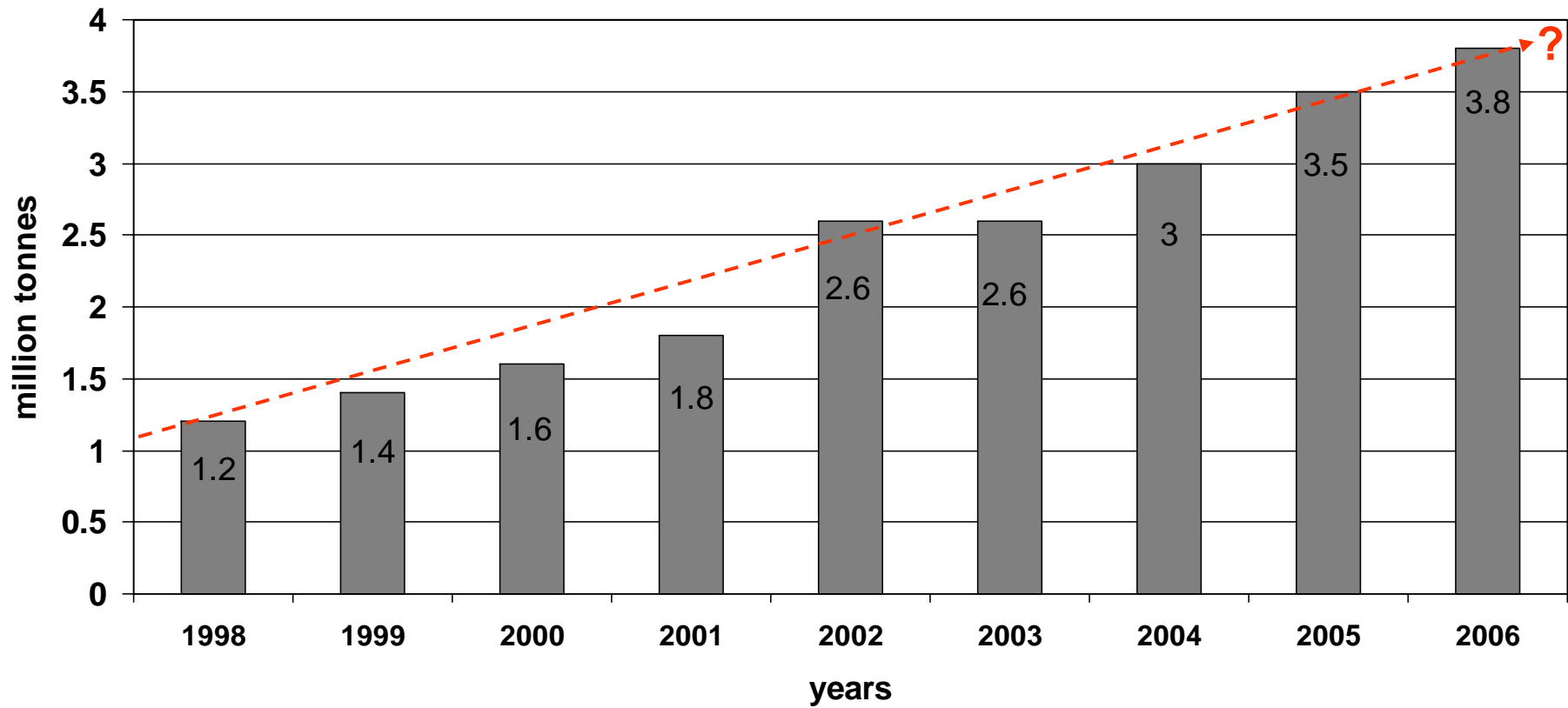


Sources: *The blue book*, 2007/08 – WME environment Business Media

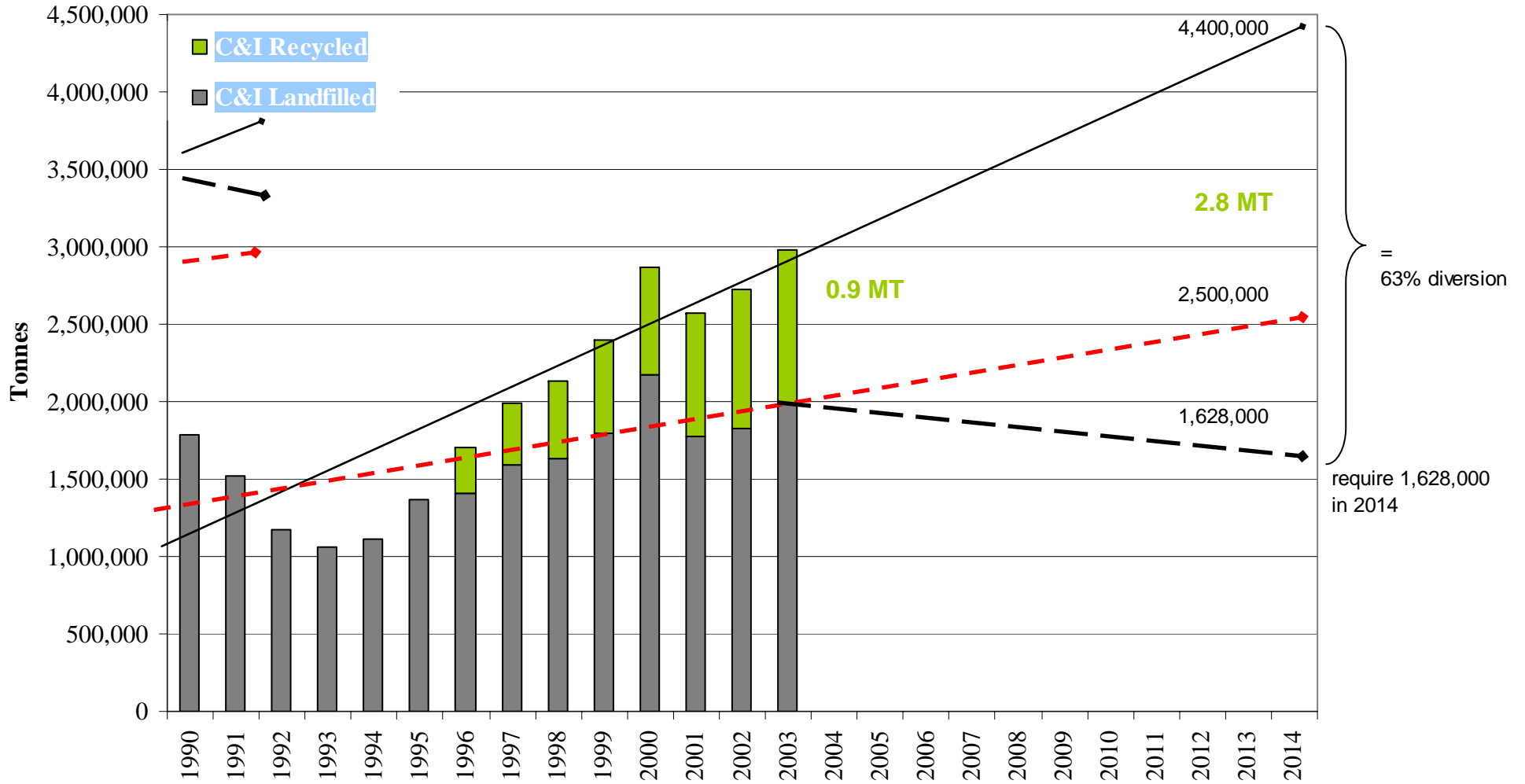
Waste and Recycling in Australia, 6 February 2006 – Hyder Consulting

QLD

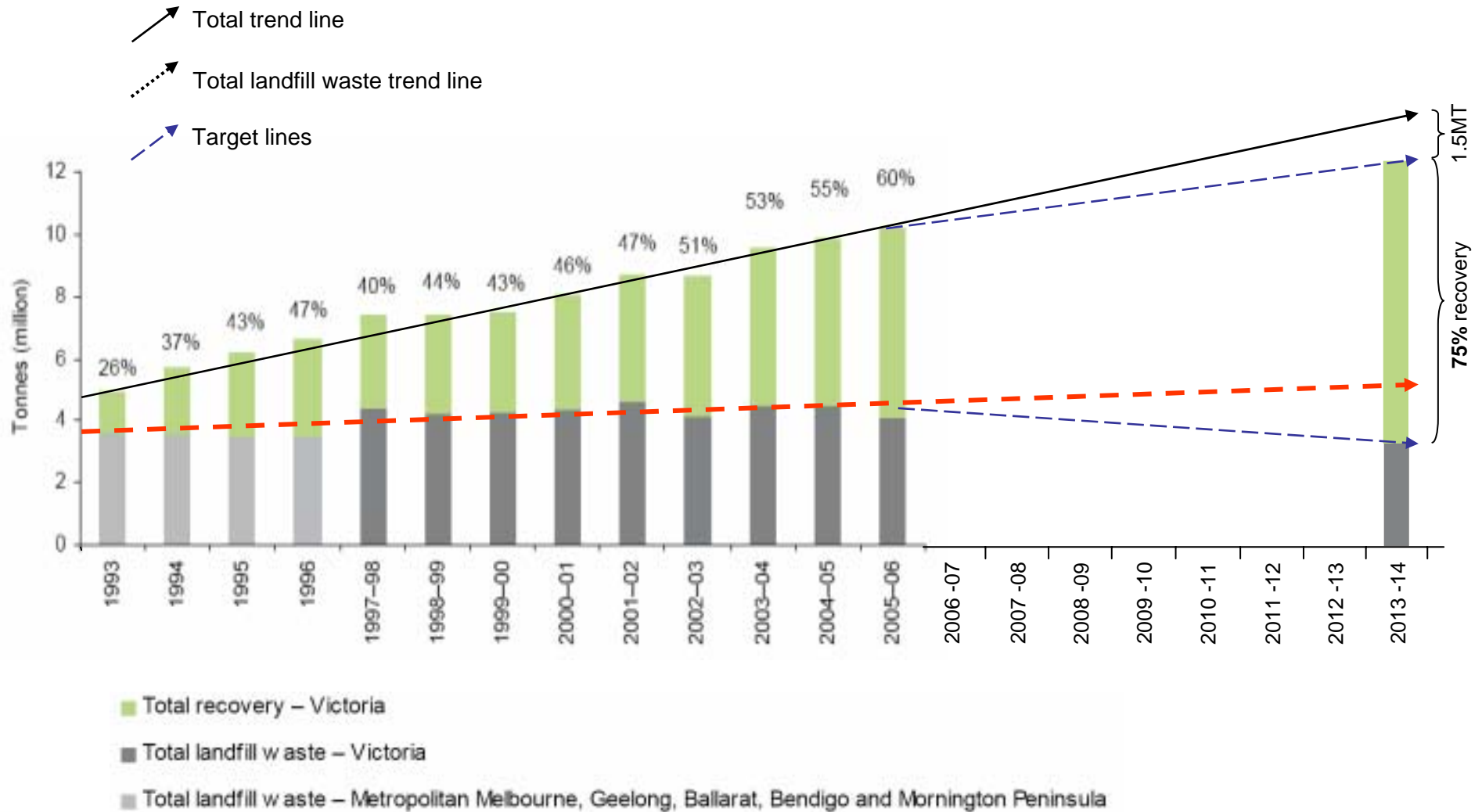
Waste to landfill 1997-2006



C+I waste to landfill SYDNEY



Total waste to landfill VIC



Key Points

1. Growth in waste to landfill is unsustainable
 - State targets are unachievable
 - Requires significant infrastructure investment

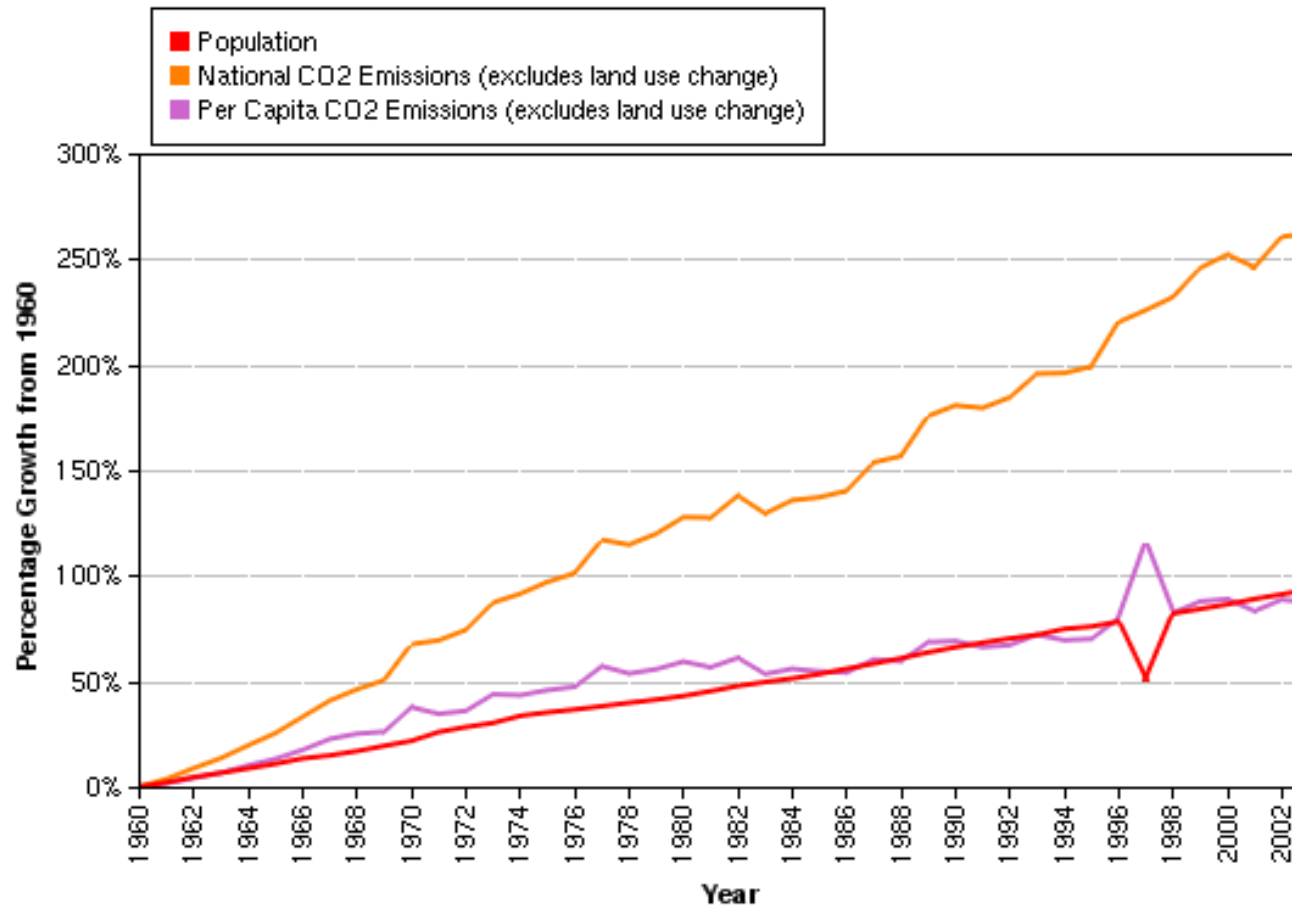
2. **Climate change requires leadership in waste**

3. Need a new dialogue with government



Increase in CO2 emissions since 1960

Australia, 1960-2003



Source: WRI



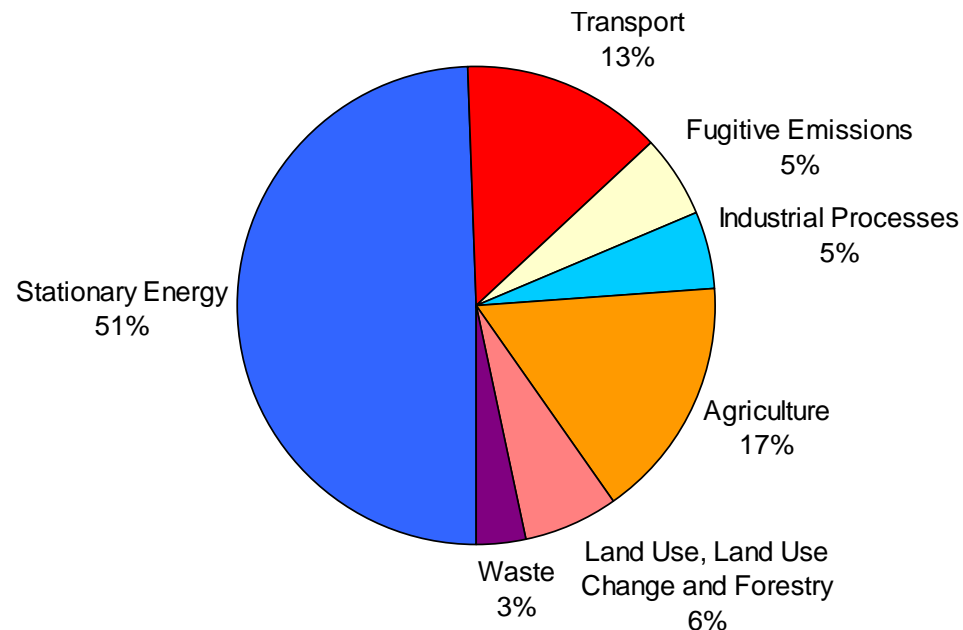
Stern report (November 2006)

- “Ultimately, stabilisation – at whatever level – requires that annual emissions be **brought down to more than 80% below current levels.**”



Waste has a key role – largely ignored

- Total = 565 MtCO₂e
- Waste = 15 MtCO₂e (ex transport) = 2.7%
- But abatement potential = 35 Mt or 6-8% - 3 key actions



Three major greenhouse gas reduction opportunities:

1. Fix the legacy of the past - improve landfill gas capture
2. Limit future emissions - limit the landfilling of waste with degradable organic carbon (DOC)
3. Capture the embodied energy of materials



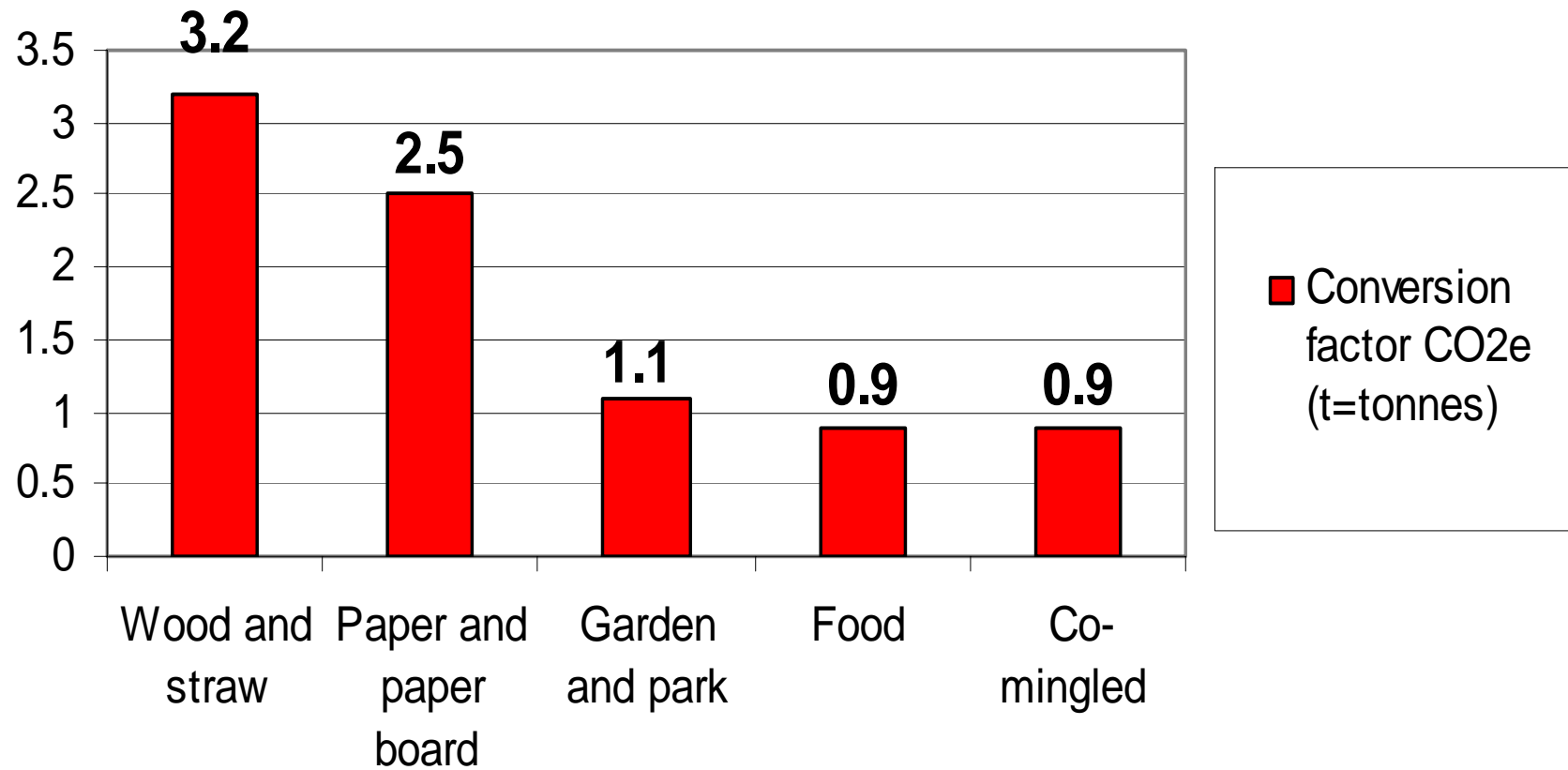
1.Landfill Gas Capture and Use

- Most landfills do not capture gas
- Organics in landfill generate methane
 - = 25 x CO₂ warming potential
 - = \$42/t of waste now unpriced
- Landfills release 15 Mt CO₂e
- **8.5 Mt** of CO₂e abatement through:
 - better landfill gas capture
 - increased electricity generation



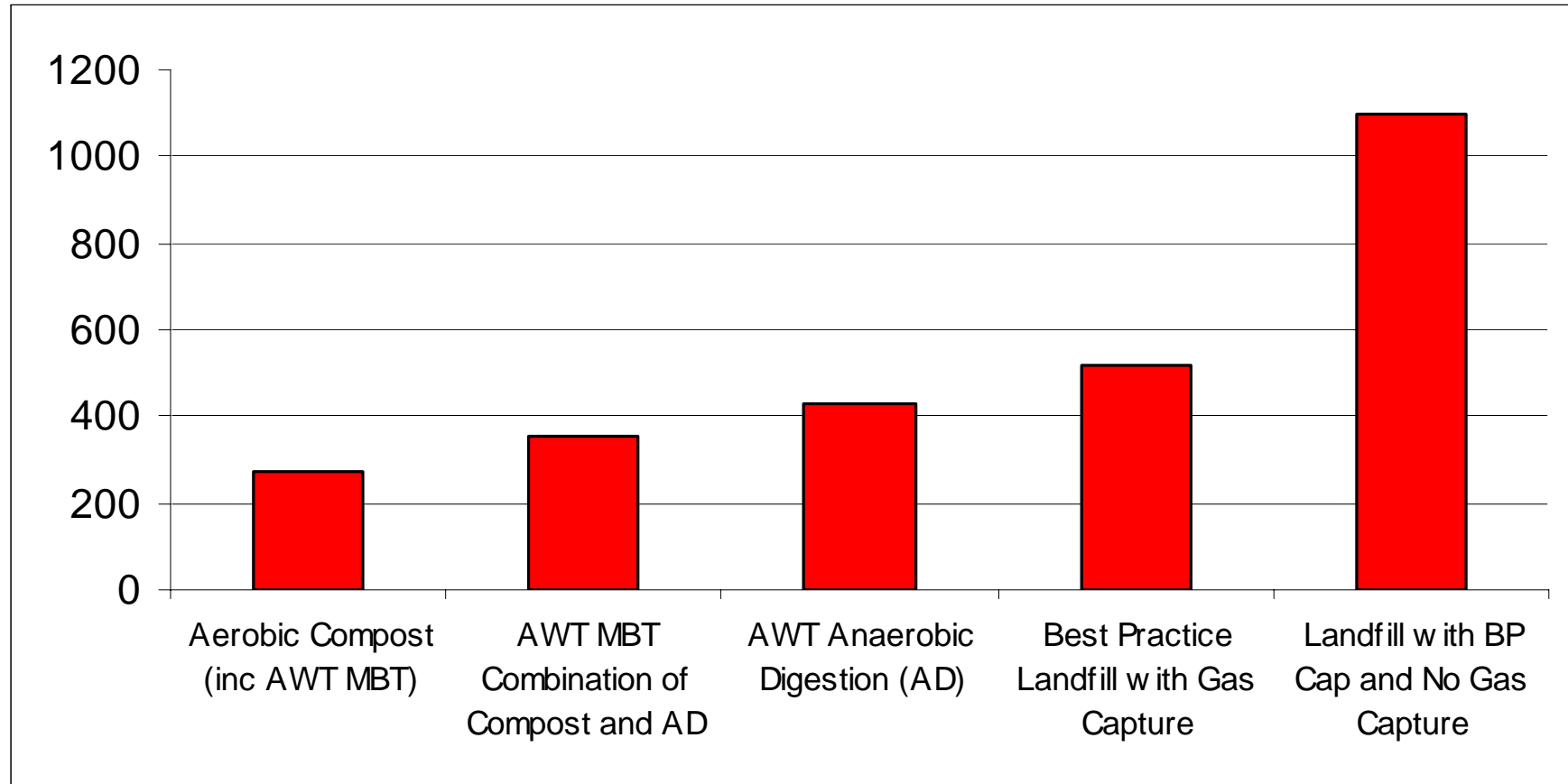
2. Avoid landfilling Organics

- DOC dissimilates to methane in landfills

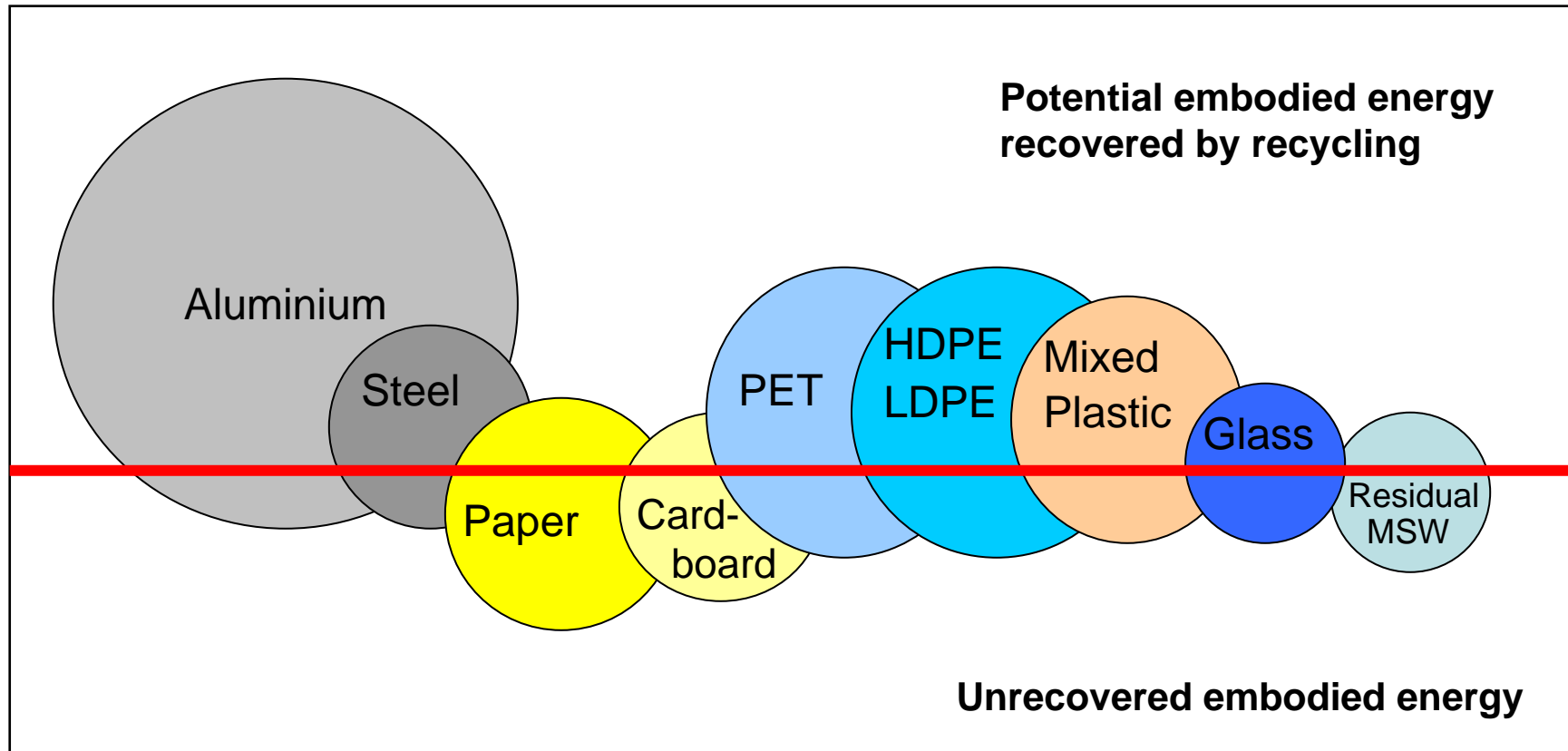


2. There are other technologies for Organics

Gross GHG emissions (CO₂e) by tonne – 1000 tonnes food DOC



3. Recycling High Embodied Energy Materials – 11 Mt



Paper & Cardboard embodied energy

240L bin fortnightly:

CO₂e savings = 2.3 t per year

Equivalent to:

- 11,414 hours use of an average LCD TV
- 7,000 km travelled by an average car



Summary – 3 key actions:

1. Capture landfill gas = 8.6 MT
2. Avoid landfilling Organics = 13.6 MT
3. Recycling high embodied energy materials = 11 MT

= 35 MT per year

Turnaround is 42.5 MT (35MT + avoided emissions of 7.5MT)

Almost equal to the GHG emissions of all cars in Australia in one year (43 Mt of CO₂e)



Key Points

1. Growth in waste to landfill is unsustainable
 - State targets are unachievable
 - Requires significant infrastructure investment
2. Climate change requires leadership in waste

3. Need a new dialogue with government

- to achieve the waste targets
- assist in reducing global warming



How ?

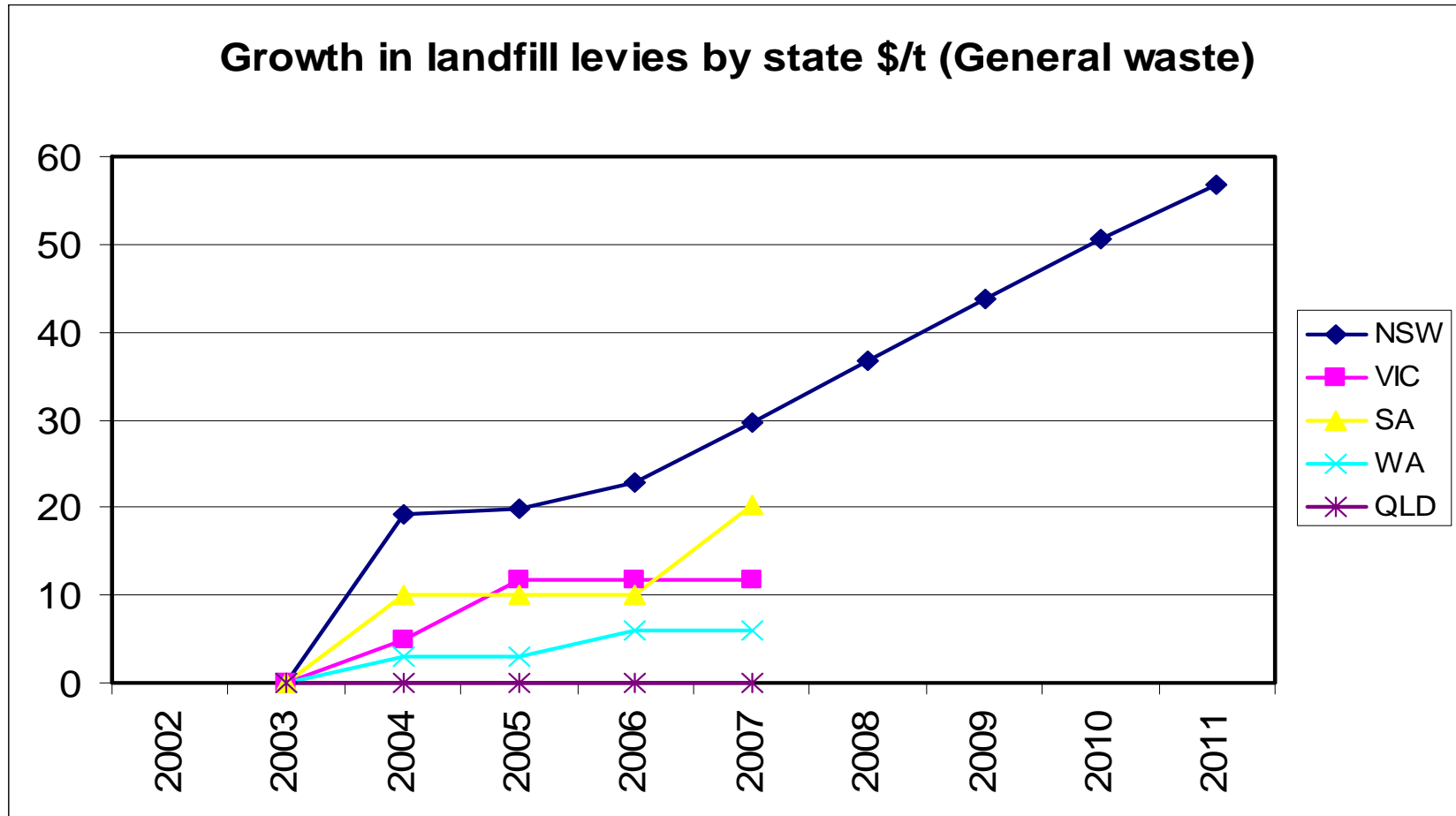
1. Require methane gas capture – improve current landfill operations
 2. Limit landfill of Organics
 3. Capture the embodied energy of materials
- } Infrastructure
- AWT's – for household waste = 50 nationally
 - C+I dirty MRF's = 50
 - Organics recycling – 10 fold growth
 - Kerbside recycling - 20% growth
 - EPR schemes for problematic wastes – electronics, gas bottles, batteries, packaging – 1200 collection centres



Investment required

- \$4 billion investment required to achieve targets
- Industry is poised to invest but needs the right signals:
 1. Market Based signals (e.g. levies)
 2. Infrastructure Grants eg VIC (\$8m/yr)
 3. Improved Planning process

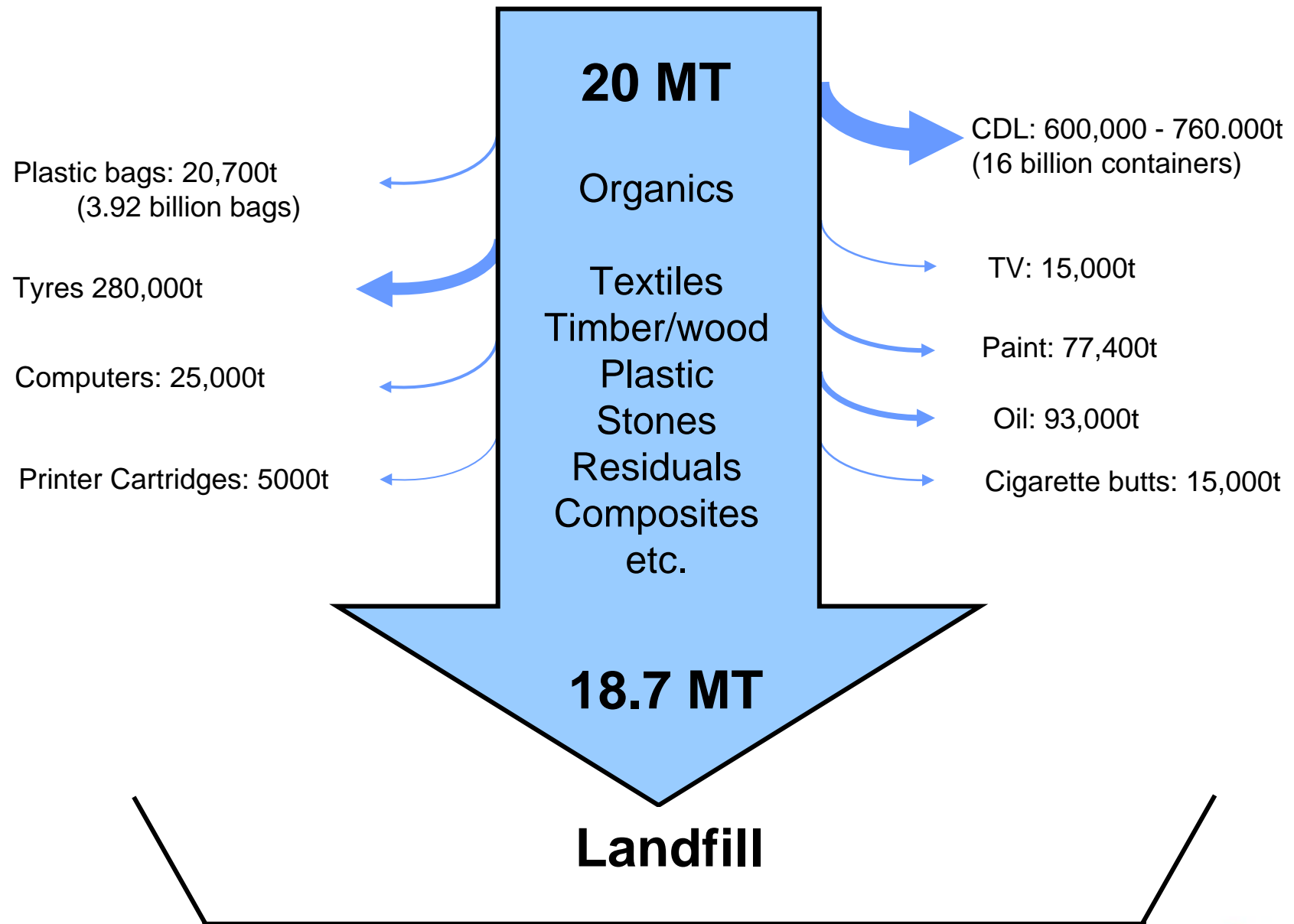




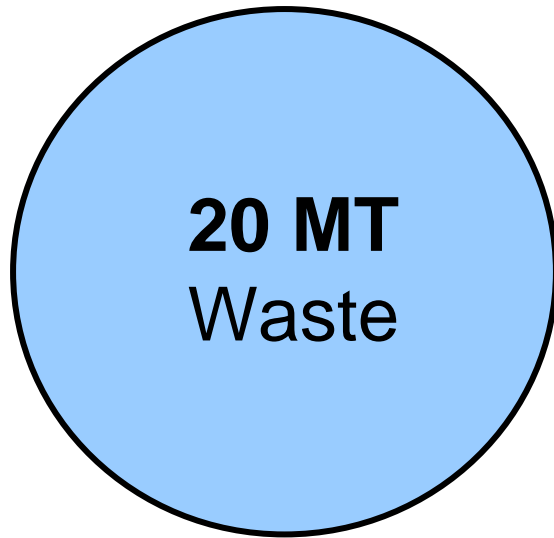
EPR Schemes

- Important to proceed rapidly into EPR
 - popular demand – TV's etc
 - clean up waste streams eg batteries from AWT
- Significant infrastructure investment -1200 centres + 400 processors
- But get the decision made and move on to Organics

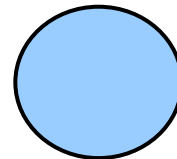




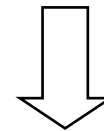
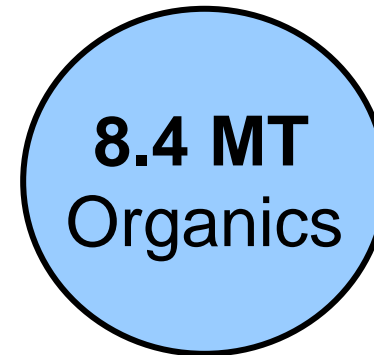
The big picture is Organics



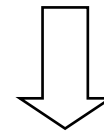
1.3 MT



- Plastic bags
- Tyres
- Computers
- Printer
- Cartridges
- TV
- CDL
- Household paint
- Oil
- Cigarettes butts



Methane



Climate change



Conclusions

1. Growth in waste to landfill is unsustainable
2. Climate change demands action now:
 1. Require gas capture
 2. Limit Organics in landfill
 3. Improve recycling rates and capture embodied energy
3. Massive investment in infrastructure
4. Move quickly on EPR schemes
5. The industry is ready to invest billions – it needs the right policy settings
6. New dialogue with government

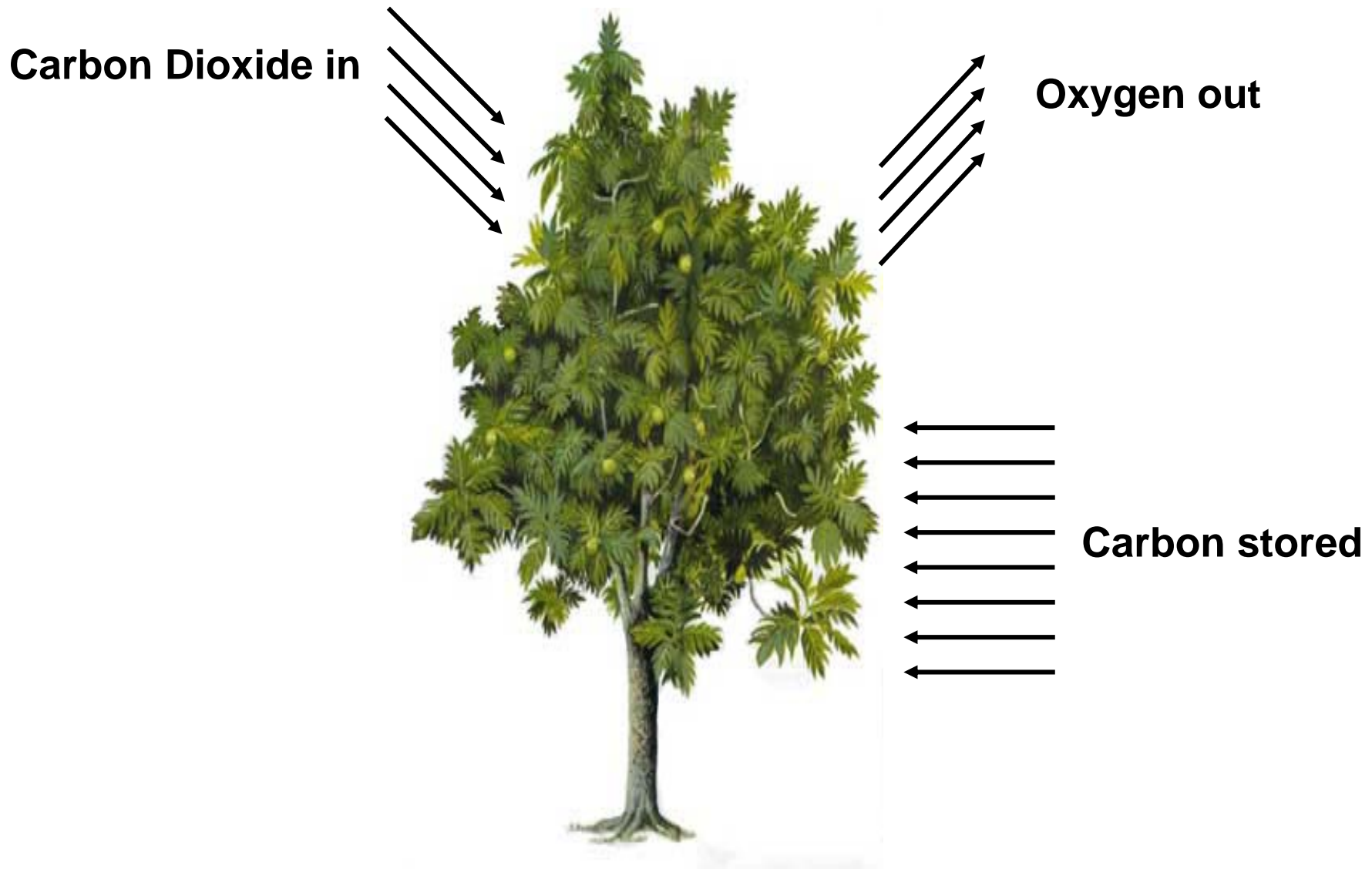


Thank you for your attention

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Policy for MSW	United Kingdom	Australia
Putrescible MSW to landfill	Mandated 2010 – 25% reduction 2013 – 50% reduction 2020 – 65% reduction	No mandated targets Voluntary targets: <ul style="list-style-type: none"> • NSW 2014 66% MSW • VIC 2013 65% MSW • WA 2020 100% • ACT 2010 100% • SA 2010 75% • NT no date 0% • QLD no date 0% • TAS no target
Landfill levy	\$A86/t	<ul style="list-style-type: none"> • NSW \$30 to \$58 in 2010 • VIC \$11/t • WA \$6/t • ACT \$80/t • SA \$20/t • NT \$0/t • QLD \$0/t • TAS \$0/t
LATS disposal penalty	\$500/t + tipping	Tipping: <ul style="list-style-type: none"> • NSW \$90/t • VIC \$40 • WA \$44 • ACT \$80 • SA \$65 • NT \$40 • QLD \$35 • TAS \$30
Recycling Targets	2006 – 23% 2010 – 30%	No regulated targets But recycling rates 40-72%



Natural cycle

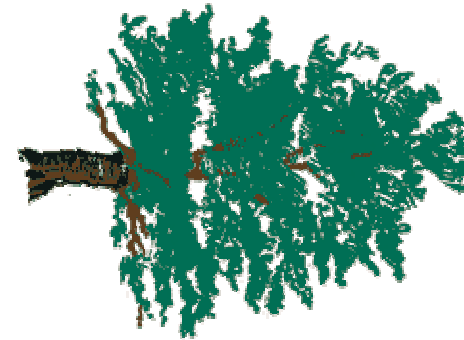
100 CO2 e



=

0 GHG effect

100 CO2 e

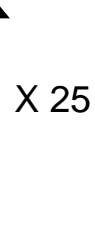


Landfill with gas capture

100 x CO₂e

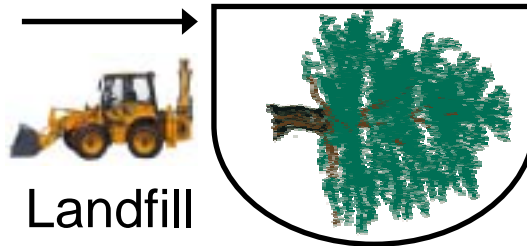


1300 x CO₂e



50 fugitive
CH₄

50 CO₂

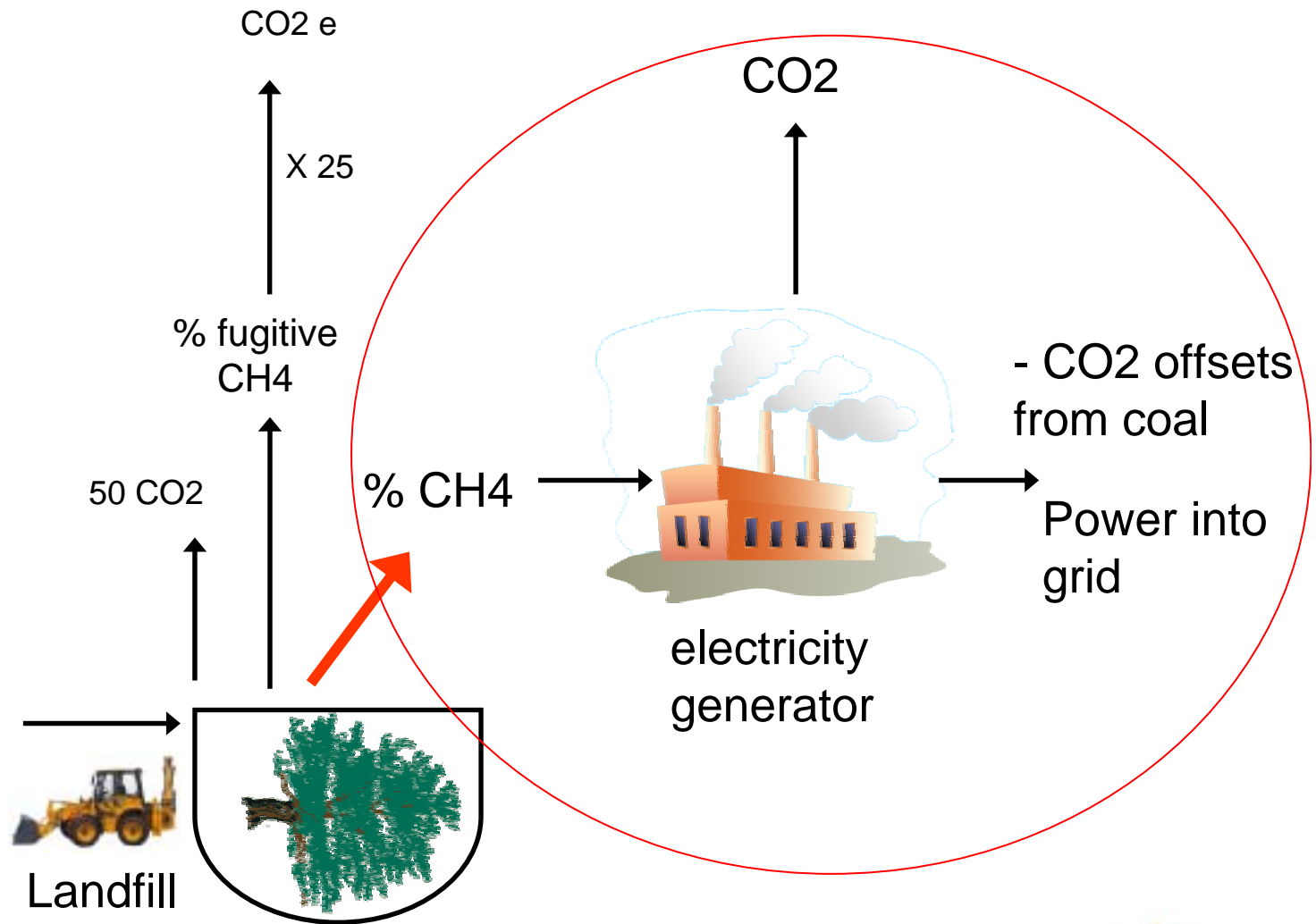


Landfill



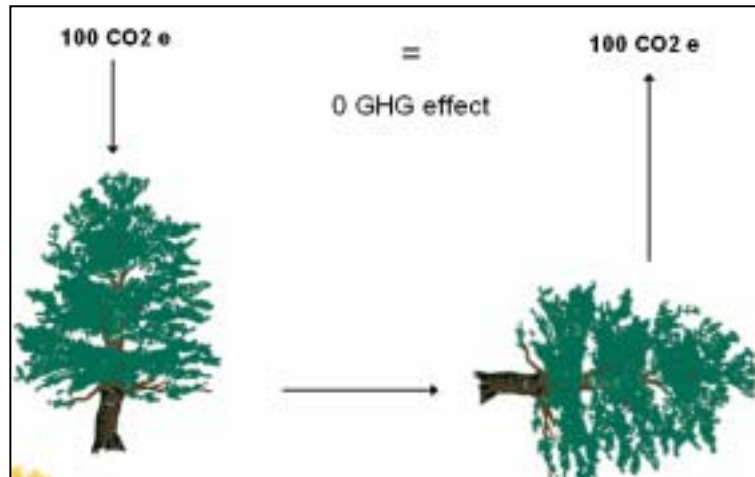
Landfill with gas capture

100 CO2 e

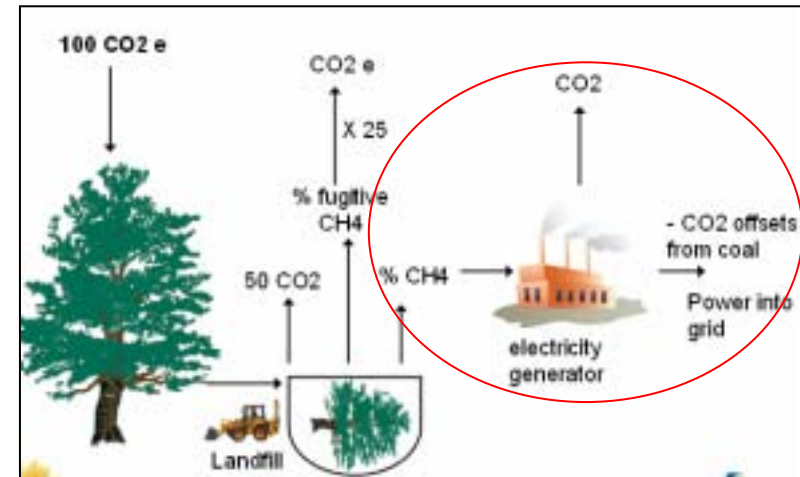


What % of gas capture do you need for landfill to break even with compost ?

Compost



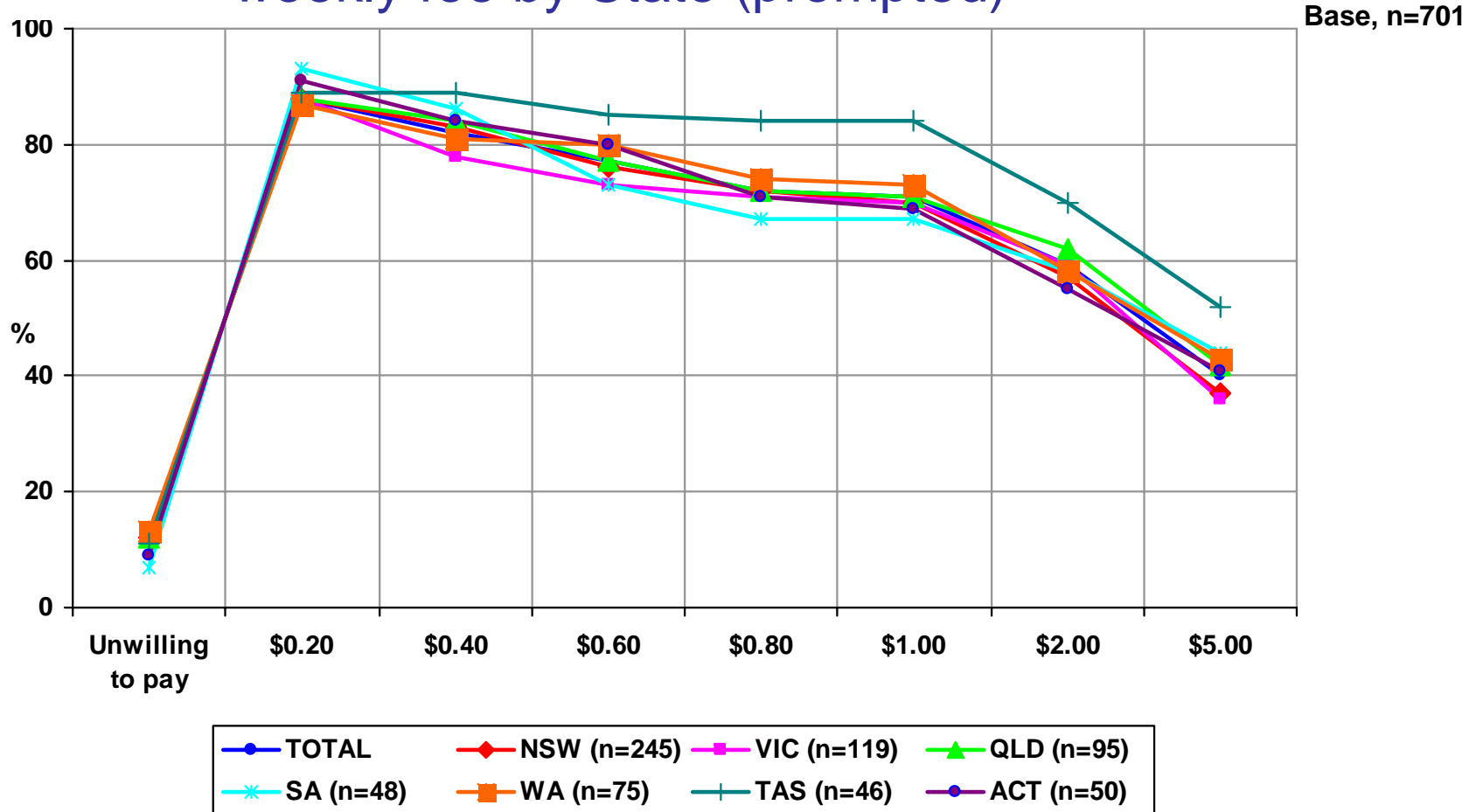
Landfill with gas capture



- Average gas capture over Whole life > 82%
- Average gas capture over Operating life > 90%



Willingness to pay additional waste collection weekly fee by State (prompted)



Q3:



Residents are:

- willing to pay
- \$94 / year or \$1.81/week



C+I waste to landfill VIC

- Total trend line
- - - Total landfill waste trend line
- - - Target lines

